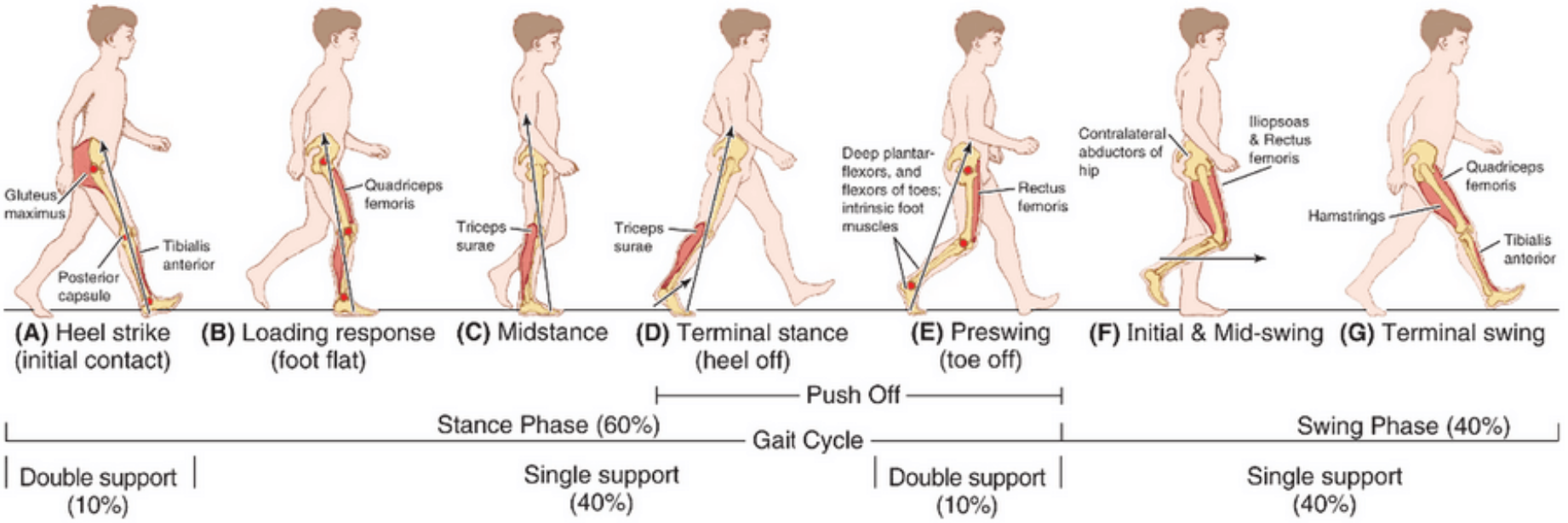
Physical Examination: Gait

Definition: Gait is the manner or style of walking.
It is dependent upon muscles, joints, nervous system and labyrinthine functions.

Normal Gait Cycle:
The **gait cycle** is the time interval or sequence of motions occurring between two consecutive initial contacts of the same foot, i.e. cycle of stance and swing by one foot.

Stance phase (60%): occurs when **foot is on the ground** and **bearing weight**
a. Initial contact: **(heel strike)**
b. Load response: **(foot flat)**
c. Mid-stance: **(single leg stance)**
d. Push off: Terminal stance **(heel off)** & Pre-swing **(toe off)**



Swing phase (40%): occurs when the **foot is not bearing weight** and **moves forward**
a. Initial swing **(acceleration)**
b. Mid-swing
c. Terminal swing (**deceleration)**

Note: *During the heel-strike of one foot (initial contact), the other foot is in the phase of toe-off (pre-swing phase) and vice-versa. This is called **"double support"** as **both the feet remains in the ground** and occupies 20% of the gait cycle. Hence, the **gait cycle is symmetrical in both the feet**.*

In running**, there is no period of double support; consequently, the time and percentage of the gait cycle represented by the stance phase are reduced. Instead, **both the feet may be off the ground at some moment** and this is known as **"double float".

Gait Analysis:
Apart from the gait cycle, following **components of gait** must be noted:

1. **Pelvic tilt**: Normally, **iliac crest** on the side of **swing leg drops** approximately **5º below horizontal** at mid-stance of opposite leg

2. **Pelvic rotation**: Normally, during **swing phase**, pelvis on ipsi-lateral side rotates 4º anteriorly and the pelvis rotates 4º posteriorly on opposite side

3. **Lateral tilt**: Normally, during stance phase, pelvis and trunk shifts 1 inch towards the stance phase leg

4. **Width of base** (horizontal distance between 2 feet during double support): Normally, **2-4 inches wide**

5. **Stride length** (distance between 2 consecutive heel strikes of the same foot): **Equal for both legs**

6. **Step length** (distance between **heel strike of one foot to** the heel strike of **another foot**: Equal for both legs